

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

DESCRIPTIONS OF SEVEN NEW RABBITS FROM
MEXICO.

BY E. W. NELSON.

The Biological Survey Collection contains several hundred specimens of rabbits from Mexico, including representatives of all the species known to occur in that country, outside of Lower California. Recent examination of this material shows that in addition to the known species it contains the two strongly marked new species and five new subspecies which are described below. I am indebted to Dr. C. Hart Merriam, Chief of the Biological Survey, for the opportunity to study this material, and to Mr. Vernon Bailey for suggestions regarding the species found along the boundary line, with which recent study has made him familiar. I am also under obligations to Mr. Gerrit S. Miller, Jr., Assistant Curator of Mammals, U. S. National Museum, to Dr. J. A. Allen, of the American Museum of Natural History, and to Mr. Outram Bangs, of the Museum of Comparative Zoology, for the use of material from the collections in their charge for comparison.

Subgenus **Sylvilagus** Gray.

Lepus insonus sp. nov.

OMILTEME RABBIT.

Type.—Adult female, No. 126,878, U. S. National Museum, Biological Survey Collection, from Omilteme, Guerrero. Collected May 20, 1903, by E. W. Nelson and E. A. Goldman. Original number 16,466.

Distribution.—Known only from type locality.

General characters.—A dark, coarse-haired species with small short tail belonging to same group as *Lepus gabbi* and *L. truei*, but considerably larger, with ears twice as large as in either of species named.

Description of type in spring pelage.—Top of head and back dark ochraceous buffy, approaching tawny ochraceous, heavily shaded and grizzled with black; cheeks and sides of body and rump a little paler and grayer than back; sides of nose and area about eyes dingy buffy grayish; nape dull dingy rusty rufous; top of tail dull dark reddish brown; under side of tail dingy brownish buffy; neck on sides and below dull dark buffy; rest of under parts white with bluish under fur showing through; tops of fore feet and under side of fore legs dingy whitish; front and sides of fore legs to shoulders tawny ochraceous; front of hind legs and tops of feet dingy whitish; rest of hind legs similar to sides but with a tawny ochraceous wash becoming most marked about heels and sides of hind feet; soles of feet dark smoke brown; ears on convex surface dark grizzled blackish brown, a little more blackish along anterior border and at tip.

Skull characters.—Skull practically indistinguishable from that of *L. truei*, but apparently with slightly shorter, heavier jugal.

Measurements.—External measurements of type (taken in flesh): Total length, 430; tail vertebrae, 40; hind foot, 93; ear from notch (from dried skin), 62.

Cranial measurements of type: Occipito-nasal length, 75; basal length of Hensel, 57; interorbital breadth, 17.5; parietal breadth, 26; length of nasals, 31.5; breadth of rostrum above front of base of premolar, 17; depth of rostrum at same point, 15; greatest diameter of bullae, 9.

Specimens examined.—Two.

General notes.—Though obviously belonging in the same group as *L. truei* and *L. gabbi*, the curiously dark color and strikingly larger ears at once distinguish the present species. The skull is decidedly larger than that of *L. gabbi*, but is practically indistinguishable from that of *L. truei*. Like *truei*, the present well-marked species lives in burrows in heavy forest, and is very difficult to secure, owing to its mainly nocturnal habits and the heavy undergrowth in its haunts.

***Lepus veræcrucis pacificus* subsp. nov.**

ACAPULCO COTTONTAIL.

Type.—Adult male, No. 70,622, U. S. National Museum, Biological Survey Collection, from Acapulco, Guerrero. Collected January 9, 1895, by E. W. Nelson and E. A. Goldman. Original number 7340.

Distribution.—Pacific Coast region of Guerrero and adjacent section of Oaxaca.

General characters.—Externally much like typical *veræcrucis*, but paler and more buffy. Skull larger and more massive; rostrum, especially, deeper and heavier.

Description of type in unworn winter pelage.—Upper parts, including top and sides of head, back and sides of body, dingy creamy buff washed and

grizzled by overlying black on tips of long hairs, the black wash heaviest on middle of back and palest on sides of body; top of tail dull rusty clay color; nape rusty rufous; front of forelegs and feet dingy buffy shading back into dull rusty buffy on sides of legs; hind legs like flanks on outside of thighs, but shading back into dingy rusty buffy; line along front of hind leg and top of foot white; neck on sides and below deep buffy; rest of under parts white except for a dingy buffy line on inguinal region; ears grizzled grayish brown on base, gradually darkening to narrow black tips on inner or convex surface.

Skull characters.—Skull similar in general character to that of typical *veræcrucis* but larger and more massive; rostrum much deeper and heavier in proportion; braincase narrower, more depressed and less abruptly descending on posterior outline; nasals nearly as broad anteriorly as at base; depth of rostrum from anterior base of molars nearly equals width above same point; jugals very heavy, with a deep groove ending anteriorly in a deep pit; bullæ about same size as in true *veræcrucis* but proportionately smaller.

Measurements.—External measurements of type (taken in flesh): Total length, 505; tail vertebrae, 58; hind foot, 113; ear from notch (from dried skin), 78.

Cranial measurements of type: Occipito-nasal length, 86; basal length of Hensel, 65; interorbital width, 19.5; parietal width, 26.5; length of nasals, 39; width of nasals at base, 16.5; width of nasals near tip, 13; depth of rostrum at anterior base of molars, 20; width of rostrum above same point, 19.5; greatest diameter of bullæ, 11.

General notes.—This is slightly larger than true *Lepus veræcrucis*, which ranges across all the intervening country between the eastern border of the tableland and the range of the present form. Specimens from interior Guerrero are referable to the typical form, with its smaller, lighter skull. Considering the climatic and other physiographic differences between the home of typical *veræcrucis* and the present form, there is surprisingly little difference in color.

***Lepus floridanus connectens* subsp. nov.**

ALTA MIRA COTTONTAIL.

Type.—Adult male, No. 63,660, U. S. National Museum, Biological Survey Collection, from Chichicaxtle, Vera Cruz. Collected February 15, 1894, by E. W. Nelson and E. A. Goldman. Original number 5849.

Distribution.—Tropical parts of eastern Mexico from southern Tamaulipas throughout the coast lowlands to the Papaloapam River in central Vera Cruz and along the east slope of the Cordillera of eastern San Luis Potosi, eastern Puebla, and eastern Oaxaca south to Mt. Zempoaltepec.

General characters.—Externally much like typical *L. floridanus*, but larger and pelage averaging a little paler. Skull longer, proportionately narrower; bullæ smaller; nasals longer and slenderer. Ears large.

Description of type in faded winter pelage.—Top of head and back grizzled creamy ochraceous buffy, thinly washed with blackish by black tips to longer hairs; sides of head, body, and rump distinctly grayer and less

buffy; top of tail dull reddish brown; nape bright rusty or light cinnamon-rufous; circumorbital area white; neck on sides and below dull ochraceous buffy; front of fore legs and outside of hind legs cinnamon rufous; back of fore legs and front of hind legs and top of hind feet white with a pale buffy suffusion on feet and toes; ears narrowly edged with white; convex surface brownish gray on base gradually darkening to brownish black toward tip.

Skull characters.—Longer and proportionately narrower than in true *floridanus*; rostrum long with height equaling width at base; nasals long, proportionately narrow and depressed at tip, giving upper surface of rostrum a gently convex outline; braincase rather narrow and drawn out, giving a more gently curving outline posteriorly than in typical *floridanus*; jugal with a strong groove ending anteriorly in a well-marked pit; bullæ smaller than in true *floridanus* but larger than in *aztecus*; general outline of skull above less strongly convex than in *floridanus* and more as in *aztecus* and *russatus*.

Measurements.—External measurements of type (taken in flesh): Total length, 442; tail vertebrae, 63; hind foot, 97; ear from notch (from skin), 63.

Cranial measurements of type: Occipito-nasal length, 76; basal length of Hensel, 57; interorbital width, 18; parietal width, 26; length of nasals, 35; width of nasals at base, 16; greatest diameter of bullæ, 10.

Specimens examined.—Forty-one.

General notes.—Specimens in midsummer pelage from the humid basal mountain slopes near Jalapa, Vera Cruz, and elsewhere differ but little in color from typical *floridanus* at the same season; the legs are a little browner and less reddish, and the head is more grayish; the ears are nearly the same in size and color. Such specimens can only be distinguished by size and skull characters. From *chapmani* their much larger size, darker colors, and the much larger and heavier skull readily distinguish them. From *russatus*, the nearest relative on the south, they may be known by their paler colors, much larger ears, and broader and heavier skull. Specimens from the humid mountain slopes at Metlatoyuca (Puebla), Jico, near Jalapa (Vera Cruz), and Mt. Zempoaltepec (Oaxaca) average rather larger and darker than those from the coast lowlands, but the difference is too slight and inconstant to warrant more than passing mention. Specimens from Mt. Zempoaltepec are intergrades between *connectens* and *russatus*, with ears approaching the latter, but their skull characters place them with the former.

***Lepus floridanus chiapensis* subsp. nov.**

CHIAPAS COTTONTAIL.

Type.—Adult female, No. 75,953, U. S. National Museum, Biological Survey Collection, from San Cristobal, Chiapas. Collected September 28, 1895, by E. W. Nelson and E. A. Goldman. Original number 8483.

Distribution.—Interior of Chiapas and western Guatemala, from not over 2,500 feet above sea level up to the summits of the highlands at over 10,000 feet.

General characters.—Similar to *L. floridanus aztecus*, but larger and a little darker, with rufous on legs of a duller and darker shade. Skull larger, with rostrum strikingly broader and more depressed at tip.

Description of type in fresh winter pelage.—Top of head and back dark grizzled ochraceous buffy (with a slight reddish tinge) overlaid with a thin blackish wash due to black tips of long hairs; sides and rump distinctly more grayish, lacking most of the reddish buffy of back; nape rusty rufous, darker posteriorly; upper side of tail dark reddish brown, becoming blackish about tip; front and sides of fore legs cinnamon rufous; back and sides of hind legs reddish chestnut; back of fore legs and front of hind legs and top of hind feet deep reddish buffy; under side of body mainly deep yellowish buffy (some other specimens have ventral surface white); sides of head with small buffy whitish spots back of and just in front of eyes; rest of sides of head similar but a little paler than reddish buffy crown; ears with fine pale border on inner side; externally (on convex surface) blackish brown from grizzled grayish brown base to tip.

Skull characters.—Skull large and heavy; longer than in *aztecus* and about the same length as in *yucatanicus* but not so massive as in that form; rostrum very broad, especially at outer end, but depth of rostrum proportionately small; outer end of nasals broad and much less depressed than in *aztecus*, thus adding to massive appearance of rostrum viewed from above; superior outline of skull posteriorly gently curved, about as in *aztecus*, but much straighter and more flattened anteriorly; interorbital width narrow; jugal heavy, with a well-marked groove ending anteriorly in a deep pit; bullæ about same size as in *aztecus* but proportionately smaller.

Measurements.—External measurements of type (taken in flesh): Total length, 468; tail vertebrae, 55; hind foot, 97; ear from notch (from dried skin), 60.

Cranial measurements of type: Occipito-nasal length, 80; basal length of Hensel, 61; interorbital width, 18; parietal width, 26; length of nasals, 37; width of nasals, 17; depth of rostrum at front base of molars, 15; width of rostrum above same point, 19; greatest diameter of bullæ, 10.

Specimens examined.—Eleven.

General notes.—With the exception of being a little darker colored, especially the rufous on the legs, and its larger size, the Chiapas cottontail bears externally a close resemblance to *L. f. aztecus*, but its well-marked skull characters are sufficient to distinguish the two. The broad flat rostrum is a strong character which is very distinctive. So far as known, this is the southernmost subspecies of *Lepus floridanus*. In general size the skull of *chiapensis* is nearest that of *yucatanicus*, but the broader, flatter rostrum, narrower braincase, and smaller bullæ distinguish it.

***Lepus arizonæ goldmani* subsp. nov.**

SINALOA COTTONTAIL.

Type.—Adult male, No. 96,812, U. S. National Museum, Biological Survey Collection, from Culiacan, Sinaloa, Mexico. Collected March 20, 1899, by E. A. Goldman. Original number 13,588.

Distribution.—Southern part of Sonora (from the Rio Yaqui) south at least to Culiacan, central Sinaloa.

General characters.—Darker and more richly colored than typical *arizonæ*, with the white and rufous areas on legs sharply contrasting. Bullæ much smaller.

Description of type in winter pelage.—Top of head and back creamy ochraceous-buff grizzled and washed with black; sides of head and body slightly paler, more pinkish buffy, with much less overlying black; small area on rump distinctly iron gray with scarcely a trace of buffy; nape rusty rufous; top of tail dark brown grizzled with dull buffy; neck, on sides and below, pinkish buff; rest of under parts clear white; front and sides of fore legs rusty ochraceous buff, becoming paler on front of legs and top of feet; back of fore legs clear white; sides and back of lower part of hind legs and feet a little darker and more rusty rufous than fore legs; line along front of hind legs and top of feet white, sharply outlined, as on fore legs, by rufous; inside of ears dingy gray; outside or convex surface finely grizzled grayish, buffy brown shading into a narrow blackish border about tips.

Skull characters.—Skull generally similar to that of typical *arizonæ*, but with rostrum broader and more inflated, or less tapering anteriorly and decidedly smaller bullæ, which in shape and proportion to skull resemble those of the *floridanus* group.

Measurements.—External measurements of type (taken in flesh): Total length, 388; tail vertebræ, 56; hind foot, 87; ear from notch (from dried skin), 66.

Cranial measurements of type: Occipito-nasal length, 66; basal length of Hensel, 52; interorbital breadth, 17; parietal breadth, 24; length of nasals, 27; greatest diameter of bullæ, 11.

Specimens examined.—Fifteen.

Subgenus *Macrotolagus* Mearns.

Lepus festinus sp. nov.

HIDALGO JACK RABBIT.

Type No. 53,490, adult male, U. S. National Museum, Biological Survey Collection. From Irolo, Hidalgo, Mexico. Collected March 31, 1893, by E. W. Nelson and E. A. Goldman. Original number 4522.

Geographic distribution.—Southeastern part of Mexican tableland in southern and eastern Queretaro, throughout most of Hidalgo, extreme northern part of State of Mexico (including valley of Mexico), Tlaxcala and adjacent part of northern Puebla.

Specific characters.—In general appearance much like *L. merriami* but darker, with much larger ears, the latter with a large, well-marked black spot at tip on convex side; nape gray, paler than back; skull smaller and lighter than in *merriami*.

Description of type in winter pelage.—Top of head dingy grizzled buffy; back buffy with a slight tinge of dull reddish brown, heavily mottled and grizzled with black; sides of body paler and grayer; thighs and rump up to median line iron gray; a heavy black band divides the gray of rump along median line and covers top of tail; under side of tail dingy gray; sides of head and neck dull buffy, palest on cheeks and darker with a slight tinge of vinaceous on sides of neck; under side of neck deep dull buffy; chin and under side of body white; top of hind feet dingy white becoming grayish on toes; top of fore legs dingy buffy thinly grizzled with blackish; ears finely grizzled yellowish gray on front half of convex surface, and fringed with slightly yellowish white hairs on anterior edge; posterior half of convex surface white, with a distinct black spot covering 35 mm. of the tip and extending a dusky edge around border of anterior part of tip; nape grizzled grayish without a trace of black patch characteristic of *L. merriami*.

Skull characters.—Skull lighter and rather smaller than that of *L. merriami*, and practically indistinguishable from that of *L. texianus* from Chihuahua and the Texas boundary.

Measurements of type (taken in flesh).—Total length, 575; tail vertebrae, 78; hind foot, 126; ear from notch (from dried skin), 138.

Measurements of type skull.—Occipito-nasal length, 96.5; basal length, 74; length of nasals, 43; greatest interorbital breadth, 26.5; parietal breadth, 31; depth of rostrum at front base of premolars, 25; width of rostrum above same point, 20; greatest diameter of bullae, 14.

Specimens examined.—Nine.

General notes.—This species is apparently most closely related to *L. merriami asellus*, from which its even larger ears and entire absence of black patch on nape at once distinguish it. The nape is much like that of *L. texianus*, and the skull is a little smaller and lighter than that of *merriami* and scarcely distinguishable from that of *texianus*. The color of back and general appearance of this animal is that of a dark-colored *L. merriami* with extraordinarily large ears and no black nape patch. Its habitat is at the southern border of that of *L. m. asellus* and widely separated from that of *L. texianus*.

***Lepus merriami altamiræ* subsp. nov.**

ALTA MIRA JACK RABBIT.

Type No. 93,691, adult male, U. S. National Museum, Biological Survey Collection. From Alta Mira, Tamaulipas, Mexico. Collected May 16, 1898, by E. W. Nelson and E. A. Goldman. Original number 12,365.

Geographic distribution.—Coastal plains in southern part of Tamaulipas, extreme northern Vera Cruz, and eastern San Luis Potosi.

Zonal distribution.—Arid tropical.

Subspecific characters.—Similar to typical *merriami* in color, but under side of neck deeper and clearer buffy, and black nape patch distinctly separated into two parallel black stripes by a well-defined median band of yellowish

often equalling black bands in width; skull larger and heavier, with longer rostrum than in *L. merriami*.

Description of type in rather worn spring pelage.—Top of head grizzled grayish buffy; back dull creamy buffy grizzled and mottled with overlying black tips to hairs; sides of body slightly paler buffy grizzled with grayish; thighs and sides of rump up nearly to median line of back rather pale iron gray; top of fore feet and legs dingy buffy; top of hind feet white; top of tail and narrow line extending forward along middle of rump black; under side of tail grayish white; sides of head, with sides and under part of neck, bright buff, with some black grizzling on sides of head; nape with a narrow black band extending back from base of each ear with a median band of buffy of equal width separating the two black bands; ear on front half of convex surface grizzled yellowish buffy and bordered along edge by a fringe of buffy hairs; posterior half of convex surface blackish at base and shading into grayish white on middle and pure white on terminal part, which lacks any sign of a black margin or tip; posterior border of ear buffy on basal half; white along rest of margin (pure on convex side, shaded with buffy on concave side) to near tip, which is buffy.

Skull characters.—Skull much as in typical *L. merriami*, but longer and rather heavier, with longer and heavier rostrum.

Measurements of type (taken in flesh).—Total length, 605; tail vertebræ, 96; hind foot, 137; ear from notch (from dried skin), 112.

Measurements of type skull.—Occipito-nasal length, 99; basal length, 77; length of nasals, 44; greatest interorbital breadth, 24; parietal breadth, 32; depth of rostrum at front base of premolar, 26; width above same point, 26; greatest diameter of bullæ, 12.

Specimens examined.—Six.

General notes.—This form agrees with typical *L. merriami* in general appearance, but in five out of six specimens examined the black nape patch is divided by a distinct yellow band. The under side of the neck is much deeper buffy, and the tips of the ears on the convex side entirely lack any trace of black in three specimens and have only a narrow black edging in the three others examined. The larger skull with longer, heavier rostrum is another character. It has a comparatively limited distribution, and occupies the southernmost area occupied by the species along the Gulf coast of Mexico, and probably does not range as far north as Victoria, Tamaulipas.